Remarks

In the final Office Action dated August 12, 2008, claims 1, 3-6, 8-9, 11, 13-15, and 17-18 are pending and claims 1, 3-6, 8-9, 11, 13-15, and 17-18 stand finally rejected. The Applicants traverse the rejections herein.

35 U.S.C. § 103 Rejection

The Examiner finally rejected claims 1, 3-6, 8-9, 11, 13-15, and 17-18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No.: 7,079,264 (Nguyen) in further view of various combinations of U.S. Patent No.: 7,079,277 (Fukazawa) and U.S. Patent No.: 5,526,477 (McConnell). The Applicants submit that none of the cited art, either alone or in combination, teaches or reasonably suggests a rasterizer adapted to perform processing on Unicode complex text data based on the language encoded by the data to position glyphs on a portion of a page. The rejection will be discussed with regard to claim 1.

Unicode is an encoding system which provides a unique number for every character, regardless of the platform, program or language. Portions of the encoded characters in Unicode are considered 'complex text'. Complex Unicode text comprises glyphs of languages such as Arabic, Hebrew, Chinese, and other Glyph based languages. In some languages, for example Arabic, the text is written from right to left, but the numbers are written from left to right. In order to print Unicode complex text correctly, processing may be done on the complex text based on the language encoded by the Unicode data. This processing may re-order the Arabic numbers such that they are printed in the correct relationship to the remaining non-numerical text.

Claim 1 recites a printer for printing a Unicode data stream, where the Unicode data stream includes Unicode complex text data. The printer includes a text parser adapted to parse the Unicode data stream and to determine the section of Unicode complex text in the Unicode data stream. The printer further includes a layout engine coupled to the text parser and adapted to receive the section of Unicode complex text from the text parser and to determine at least one glyph of at least one font corresponding to the section of Unicode complex text data. The printer further includes a rasterizer coupled to the layout engine and the text parser and adapted to perform processing on the section of Unicode complex text data based on the language encoded by the data to position the at least one glyph on a portion of a page.

Nguyen discloses a printer driver supporting Unicode characters. In Nguyen, the printer driver is capable of translating double byte Unicode data into single byte data to utilize the device fonts of existing printers (Summary). Nguyen further discloses that a raster module handles all bitmap related functions (Column 7, lines 57-58). The raster module supports half-toning, color correction, and dithering patterns, and bitmap related function calls (column 7, lines 59-61).

First, the Applicants submit that Nguyen does not teach or reasonably suggest processing Unicode complex text based on the language encoded by the text. Nguyen suggests a raster module 122 (See FIG. 2). Raster module 122 in Nguyen is operable to handle bitmap related function calls (Column 7, lines 57-58). Nguyen further suggests that a device font sub-module 144 handles Glyph translation and printing (See FIG. 2; Column 9, lines 6-9). FIG. 4 illustrates the Glyph translation disclosed in Nguyen. Unicode data containing Glyphs is received in step 134. When a Glyph is not supported, the Glyph is drawn as a bitmap before being sent to the printer (Steps 136, 146, and 148). When a Glyph is supported, a Glyph mapping table is reviewed to determine if the Glyph is in the current symbol set (Step 140). If the Glyph is in the current symbol set, the Glyph character code is retrieved and sent to the printer (Steps 143 and 145). If the Glyph character code is not in current symbol set, the symbol set is changed, the Glyph character code is retrieved, and the character code is sent to the printer (Steps 141, 143, and 145). The Applicants submit that Nguyen discloses Glyph based printing based on either a bitmap or a character lookup in a table (Steps 146 and 143). Nguyen does not teach or reasonably suggest that language dependent processing is done on the Glyphs. The Applicants further submit that neither Fukazawa nor McConnell alleviates this weakness in Nguyen, and that claim 1 is non-obvious for at least this reason. Independent claim 11 and dependent claims 3-6, 8-9, and 13-18 are non-obvious for at least the same reasons.

Second, the Applicants submit that Nguyen does not teach or reasonably suggest that language dependent processing of Unicode complex text is used to position Glyphs on a page. In Nguyen, FIG. 4 discloses Glyphs drawn as a bitmap and sent to a printer (Steps 146 and 148). Nguyen also discloses that Glyph character codes are retrieved from a table and sent to a printer (Steps 143 and 145). Nguyen does not suggest that positioning the Glyphs on the page is based on the language of the Unicode complex text processed in step 134. The Applicants further submit that neither Fukazawa nor McConnell alleviates this weakness in Nguyen, and that claim

1 is novel for at least this reason. Independent claim 11 and dependent claims 3-6, 8-9, and 13-18 are non-obvious for at least the same reasons.

Conclusion

The Applicants submit that claims 1, 3-6, 8-9, 11, 13-15, and 17-18 are non-obvious for at least the reasons provided above. The Applicants thus respectfully ask the Examiner for reconsideration and allowance of claims 1, 3-6, 8-9, 11, 13-15, and 17-18.

Respectfully submitted,

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